

2021 NEW JERSEY OSPREY PROJECT REPORT



Red auxiliary banded osprey 75/M standing on its nest after being banded. Long Beach Island, NJ. July 2021. Photo by Matt Reiting.

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The return of ospreys each spring marks the end of winter. As their seasonal migration is mainly controlled by their local food supply, their pressure to breed early is profound. In 2021, sightings of ospreys returning to their breeding grounds began in mid-March. Experienced adults are known to arrive the earliest — to reclaim their nests and mates. With few natural sites (dead trees or trees with broken main leaders) that will hold a nest, the majority of ospreys nest atop human created structures (89%).

As the population continues to grow, with more competition for established nests, some young adult ospreys challenge established pairs. April is the season for upside-down osprey, as established pairs defend their nests from these interlopers. Nests are built using mostly natural nesting material, but in such a densely developed coast, interaction with plastic marine debris is unavoidable.

Each spring we receive many notifications from concerned citizens about plastics in nests or adults who become entangled. Despite our efforts to clean out nests during the non-breeding season, more plastic makes its way into a nest each season. In each entanglement situation, we assess and take action, if needed. Luckily, for several entanglements, the birds were able to free themselves, but the threat of entanglement and suffocation from plastics is increasing.

As stated by a good friend and colleague, it takes the perfect recipe for ospreys to thrive and weather plays a big role in their successful reproduction. According to the NJ State Climatologist, last year was the third warmest since 1895 and was the sixth warmest summer on record. Precipitation varied widely throughout the different regions of the state with some being wetter than others, but the annual precipitation was around average with July and August being wetter than normal. One notable summer storm occurred after dark on July 29, during the nestling period for ospreys, which produced an EF2 tornado. The path of the storm went across Barnegat Bay, from Barnegat to High Bar Harbor, with 115-120 mph wind gusts. Luckily there were few osprey nests in the path of the tornado, otherwise it would have been catastrophic if it hit a high density nesting colony, like Sedge Island. The high winds and driving rain were captured on the Barnegat Light Osprey Cam, which was around .3 miles south of the tornado.

Ken Ostrom
WRENSTPILOT



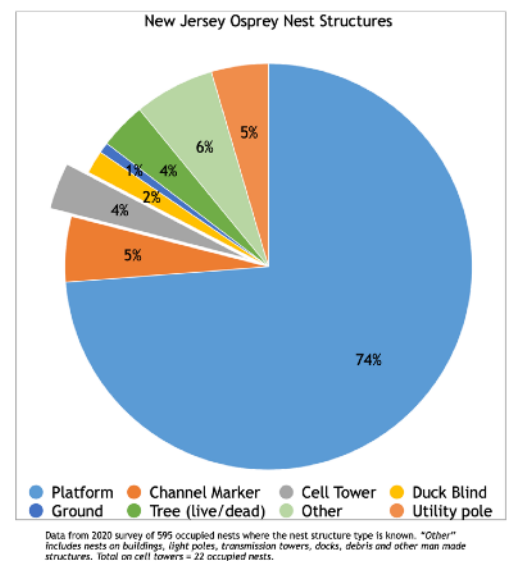
Osprey 788-49086 perched with partially consumed prey in Oceanport, NJ. March 17, 2021. Photo by Ken Ostrom.



Schooling Atlantic menhaden. Ocean Grove, NJ. September 2021. photo by John Entwistle.

Productivity was increased in the majority of nesting colonies throughout the state as compared to the previous year. Prey species like Atlantic menhaden and summer flounder continue to be plentiful during the nestling period in June and July. Several large die-offs of menhaden were investigated by NJ Fish & Wildlife in the Shrewsbury and Navesink Rivers in Monmouth County last spring. It was found that a bacterial infection (*Vibrio anguillarum*) caused the mortality events and that no wildlife, like ospreys were affected by it.

The majority of ospreys continue to nest on platforms (74%) and others nest on a variety of man-made structures including utility poles, communication towers, intracoastal channel markers, and duck blinds. In some colonies, natural nests in standing dead/live trees, snags in water, or on open salt marsh are increasing as more of these structures become available to nest. A total of 58 new nests were documented last year.





Each year, we work closely with homeowners, landowners and public utility companies to address osprey nest issues. In each situation, we determine the best course of action to protect ospreys and human infrastructure. As the population continues to grow and less suitable structures are available to ospreys, they will seek out nesting on man-made structures that allow for it. As a management objective, we are not actively installing new nest platforms to help the population grow exponentially. Instead we are focused on maintaining existing nest platforms to ensure that they are in suitable condition — to sustain the state population. With that said, new nest platforms are only being installed in situations where an established nest needs to be relocated off of a dangerous structure (like a utility pole). In 2022, we hope to determine the overall size of the state population using volunteer “Osprey Watchers” to assist with a statewide census.

METHODS

Summer nesting surveys occurred in late June and early July, when osprey young are highly visible and unable to fly. Staff and specially trained volunteers, aka “Osprey Banders” conduct surveys by boat within the most densely populated colonies along the coast of New Jersey, from Point Pleasant south to Cape May and west along the Delaware Bay. Those colonies include Barnegat Bay, Great Bay, Absecon Bay, Ventnor/Margate/Ocean City, Great Egg Harbor, Sea Isle, Stone Harbor/Avalon, Wildwood, Cape May Harbor, and nests on along the Delaware Bayshore, including the Maurice River. Nests on platforms are surveyed with use of a ladder. Mirrors and/or GoPro action cameras on extension poles are also used, which help reduce time spent at nests and disturbance. Nests with visible plastics/marine debris are climbed for removal. The young are counted and quickly examined to be sure they are healthy and not entangled in plastics. Young are then banded with aluminum, lock on, USGS bird bands for future tracking if the conditions are ideal. Last year 25% of young produced were banded with federal bands and 5% with state auxiliary color bands (nests located on Barnegat Bay).

A sUAS/drone is also utilized by a licensed unmanned pilot (Ben Wurst) to survey a handful of nests. Drone surveys are helpful when a nest is located on a tall structure that is not easily accessible and young are not visible or it's within a section of salt marsh that is difficult to access by foot or boat. In addition, aerial surveys by drone have helped scout large areas of salt marsh for new nests. The environmental conditions, including good visibility with light winds and a visual observer are critical for successful aerial surveys. Aerial surveys are only conducted in areas with no flight restrictions.



An osprey nestling is banded with a red aux. band for future tracking. July 2021. photo by Matt Reitingner.

From our aerial surveys we have learned that nesting ospreys are largely unaffected by drones if they are operated at a distance of at least 200' from an occupied nest. **It is important to stress that no pilot should operate a drone with the intent of “checking out” an active nest as it could cause harm to ospreys and/or damage to your aircraft**, as ospreys will destroy it if it gets too close.

Since 2013, after ospreys reached the pre-DDT population estimate, we have relied on citizen scientists to help record nest activity. All known nests are mapped online at [Osprey-Watch.org](https://www.osprey-watch.org), where the public can use an interactive map to find nests and then record activity at nests that they watch. Areas where we don't conduct surveys by boat are where we hope to collect data through Osprey Watch. These areas include northwestern New Jersey, the Meadowlands, Raritan River and Bayshore, Sandy Hook/Gateway National Recreation Area, the Navensink and Shrewsbury Rivers and other Atlantic coastal sections of Monmouth County (south to Point Pleasant) and the Delaware River. This year 21% of occupied nests (147) were recorded through Osprey-Watch.org.

RESULTS

Overall, a total of 706 nests were occupied throughout the state, which is the greatest number ever recorded in the history of the project. The majority are found along the Atlantic Coast, from Sandy Hook to Cape May (606) and remainder were located along the Delaware Bay (67) and the northeast/inland/Delaware River (33). The largest colony of nesting ospreys is located within the Barnegat Bay Estuary (163). The outcome was determined in 75% of occupied nests, meaning these nests were ones that were active (had eggs and/or young) and either successfully produced young or failed (eggs/young lost). A total of 883 young were produced from the 532 known-outcome nests throughout the state, which is slightly above the five year average.

Osprey colonies with the greatest productivity were those located on the Maurice River (2.10), Wildwood and Cape May Harbor (1.84) and Great and Absecon Bays (1.70). Nests along the Delaware Bay are more productive than nests on the Atlantic Coast. The least productive colonies were located in Sea Isle (1.47), Barnegat Bay (1.51), and North Jersey (1.53).



3-4 day old hatchlings with prey. June 2021. photo by Ben Wurst.

We continue to lack occurrence and outcome data on ospreys nesting in Monmouth County, including Gateway National Recreation Area-Sandy Hook, so data from this region is lacking. Previous surveys have documented more than 100 nesting pairs, while this year only 53 nests were accounted for. We hope to get a more accurate count in 2022, as we're planning to conduct a statewide census using many volunteer "Osprey Watchers" to fill in data gaps. Overall, staff, volunteer banders and Osprey Watchers helped determine the statewide productivity rate, which is a measure of the health of the population. In 2021, the average productivity rate was 1.66 young/active (known-outcome) nest. This is twice the level needed to sustain the population but slightly below the rolling five year average of 1.77.

BAND RECOVERIES & RED BAND RE-SIGHTINGS

In 2021, 42 ospreys who were banded as nestlings were recovered or re-sighted. The majority (31) were live and identified by their bands during nest surveys. Of those, 28 were auxiliary banded with red bands, of which 499 have been deployed on young who originated from nests within the Barnegat Bay Estuary. Project RedBand is an osprey banding and re-sighting project which is centered around engaging the public in osprey management in New Jersey. By obtaining re-sightings of Barnegat Bay ospreys with red bands, we are learning more about their local dispersal, site fidelity, nesting habits, life span and more. Full results are in Table 2.

Other notable band recoveries and re-sightings include two found dead in Venezuela (14yr & 5yr); a 3 year old found dead in Haiti, and a 20 year old found dead in Hammonton, who is the oldest living osprey ever recorded in the history of the project. Before he was found dead, he was rescued by a Hammonton Police Officer Jay Pinto after the osprey went after a



2021 PROJECT REDBAND & OSPREY BAND RECOVERIES

Just a few of the elite red banded ospreys who were photographed this year (from L to R and top to bottom). 71/C by Candice Ross, 66/K by Ben Wurst, 32/H by Jim Verhagen, 44/C by Ben Wurst, 67/C by Rich Bendock, 65/D by Ben Wurst, 44/D by Matt Reiting, 69/K by Vicki Mcerlean, 15/H & 34/D by Ben Wurst.

fisherman's lure and got snagged. A couple weeks later and the bird was found dead (wrapped in monofilament) near Hammonton Lake on November 5, 2021. We wonder what might have caused this experienced adult to linger so late in fall and be so desperate to go after a fisherman's lure. At its age, accumulation of contaminants could have played a role. Still, it is good to know that some ospreys can live as long as 20 years!

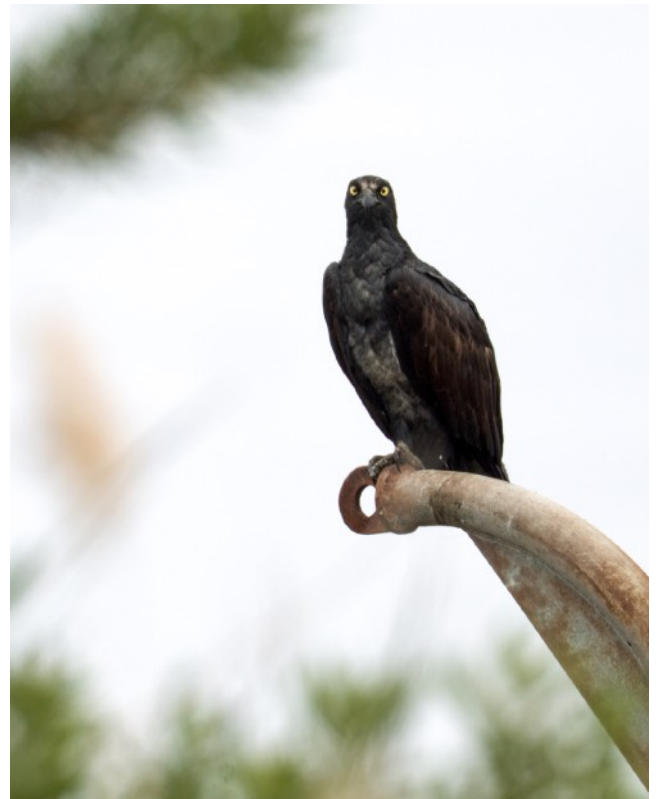
POLLUTION AND OSPREYS

Plastic marine debris continues to be a threat to nesting ospreys in New Jersey. Ospreys use plastic in their nests to “decorate” and are unaware of the potential to entangle, entrap or suffocate their young. During the beginning of the nesting season (April) is when we tend to get reports of adults with plastic attached to their legs or feet and this is from them collecting nesting material, where much plastic collects. We know of at least one nest (with a live streaming camera, the Pete McLain Osprey Cam at Island Beach State Park) that had one nestling who was killed by a single use plastic bag.

When we conduct nesting surveys and off season maintenance of nest platforms, we remove (and properly dispose of) all plastic that we find. We record the presence of plastic in nests and do respond to emergencies when adults or young become entangled. As the presence of plastics in shoreline areas is only getting worse, we hope to use the data collected to determine its role in the osprey life cycle.

Lastly, one other notable finding was an oiled osprey was observed on the Maurice River in early May. He was observed around the same time and area of a reported diesel spill. Some believe the bird was melanistic (a dark color phase), which is extremely rare (the last reported occurrence was 2002 in Florida). The coloration of this (oiled) osprey was black as opposed to their (normal) dark brown plumage. In a true melanistic osprey, their head, breast, back and belly would all be dark brown, not black.

In conclusion, we continue to see the population grow and seek to census the state population in 2022. For the first time in five years, we are conducting a statewide census of nesting ospreys. The census will be largely conducted by volunteers who will document the occurrence of ospreys at nests. Unlike historic censuses, aerial surveys will not be utilized. Instead we ask the public to contribute data online, on Osprey-Watch.org. Data collected through Osprey Watch allows us to fill in gaps between the dense colonies that are surveyed by our Osprey Banders. We will be holding a couple virtual trainings to give an overview of osprey management and nest surveying, which can be done by anyone who has a pair of binoculars, access to the internet, and wants to contribute to the New Jersey Osprey Project.



“Dark Star” the oiled osprey. photo by Matt Reitingner.

Project Staff: Ben Wurst, Kathy Clark, Larissa Smith

Volunteer Osprey Banders: Fred Akers - Great Egg Harbor Watershed Association, Jane and Peter Galetto - Citizens United to Protect the Maurice River and its Tributaries, Trish Miller, Northside Jim - Nest Story, Damon Noe - The Nature Conservancy, Bill Stuempfig, Matt Tribulski, Hans and Hanna Toft, John King and Wayne Russell.

Thanks to everyone who donates to Conserve Wildlife Foundation of NJ, contributes to the Endangered and Nongame Species Program through the Check-Off for Wildlife on their NJ State Income Tax, and by purchasing Conserve Wildlife License Plates!

Funding also provided by the U.S. Fish & Wildlife Service, with matching contributions from Osprey Project volunteers.



NJ Osprey Project Volunteer Bander Hanna Toft bands an osprey nestling in Stone Harbor, NJ. Photo provided by Hanna Toft.

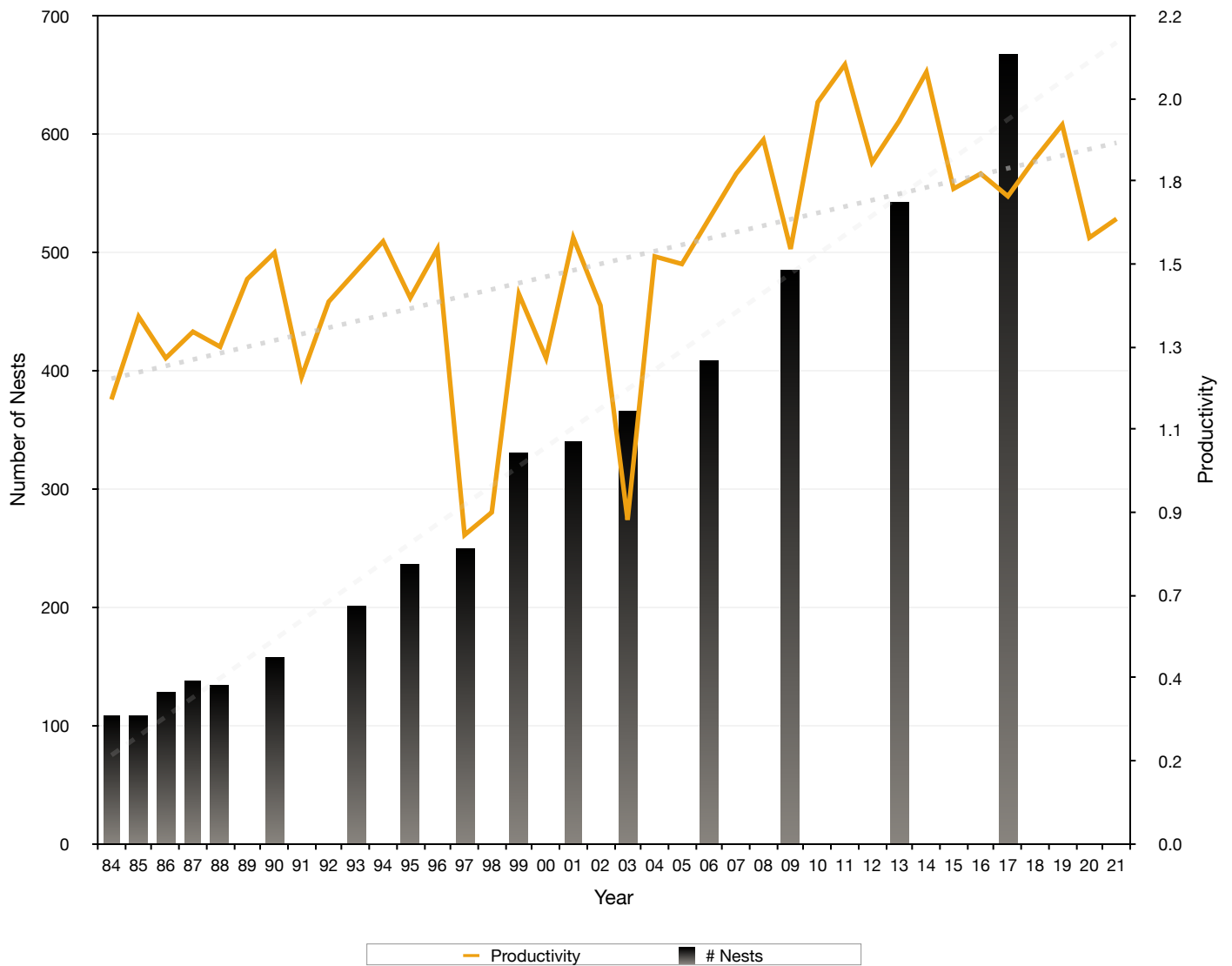
Special thanks to: Bill Clarke and the Osprey Foundation for his continued support of our efforts to monitor and manage New Jersey's ospreys.

Thanks to: Jim Verhagen – NestStory; Don and Karen Bonica; Dr. Erica Miller; Dr. Andrew Wurst - Barnegat Animal Clinic; Osprey-Watch.org; Hugh Carola - Hackensack Riverkeeper; Bill Schultz - Raritan Riverkeeper; Borough of Seaside Heights - Public Works; Woodhaven Lumber & Millwork - Manahawkin; The Wetlands Institute; Cattus Island Park - Ocean County Parks; Citizens United to Protect the Maurice River and its Tributaries; Great Egg Harbor Watershed Association, Island Beach State Park; Friends of Forsythe NWR; Friends of IBSP; Toms River Avian Care; Tri-State Bird Rescue & Research; The Raptor Trust; Zoological Society of New Jersey; PSE&G; NJ-NY Baykeeper; Garden Club of LBI; Jetty Rock Foundation; The Home Depot in Manahawkin; Cape May County Mosquito Control Department; Ocean County Mosquito Commission; and all other donors and volunteers who assist with and support the project.

Table 1. Osprey productivity in 2021 in all major nesting areas. Productivity was determined by ground surveys in June-July. Productivity rates in 2018-2020 provided for comparison.

						Previous Years		
Nesting Area	# Nests	Known-Outcome Nests	# Young	# Banded	Production 2021	2020	2019	2018
Delaware River Basin & North Jersey	21	17	26		1.53	2.18	1.60	
Hackensack/Hudson Rivers	12	10	17		1.70	1.57	1.40	2.50
Raritan River & Bay	2	0				2.17	1.32	1.16
Monmouth County	51	8	7		0.88	1.82	2.29	2.05
Barnegat Bay	127	87	133	47	1.53	1.45	1.93	1.71
Sedge Islands	36	24	36	5	1.50	1.24	1.86	1.32
Great Bay to Atlantic City	107	74	126	21	1.70	1.38	1.80	1.65
Great Egg Harbor/Ocean City	92	81	130	10	1.60	2.14	2.14	1.99
Sea Isle City	38	36	53	0	1.47	2.03	1.74	1.45
Avalon & Stone Harbor	95	83	133	23	1.60	1.26	2.09	1.91
Wildwood & Cape May	58	51	94	34	1.84	1.38	1.90	2.11
Delaware Bay & Maurice River	67	61	128	79	2.10	1.65	2.09	2.24
TOTAL of Study Areas	706	532	883	219	1.66	1.61	1.91	1.82
Barnegat Bay	163	111	169	52	1.51	1.35	1.89	1.52
D. River/N. Jersey	33	27	43	n/a	1.59	2.03	1.60	
Atlantic Coast	606	444	712	140	1.60	1.58	1.90	1.75
Delaware Bay	67	61	128	79	2.10	1.65	2.09	2.24
Total Statewide	706	532	883	219	1.66			

Chart 1: Number of osprey nests and average productivity in New Jersey.



Red banded osprey 00/C photographed at his nest within Sedge Island WMA July 2021.

Table 2. Auxiliary banded osprey recoveries and re-sightings in New Jersey in 2021.

Federal Band	Aux Band	Origin Nest ID #	Date banded	Date of re-sighting	Previously re-sighted?	Distance from natal nest	Present Condition	Bird status	Sex	Age	Who Reported
1088-06497	71/C	101-C-010	7/1/2015	4/12/2021	No	2.83	Live	Nesting @ 101-B-022	M	6	C. Ross
1088-14596	18/H	123-A-010	7/9/2017	4/13/2021	Yes (2x in 2020)	2.97	Live	Intruder at BL Osprey Cam	M	4	B. Wurst
1088-08849	06/D	135-A-026	7/1/2016	4/18/2021	Yes (2020)	54.5	Live	Nesting at 072-A-015	F	5	J. Brown
1088-14861	91/H	135-A-031	7/9/2018	4/26/2021	No	1.87	Dead	Found in homeowner's front yard with menhaden nearby	M?	3	K. Kasper
1088-14603	25/H	123-A-008	7/9/2017	5/9/2021	No	0.85	Live	Hovered over Spizzle Creek blind nest (123-A-018)	M	3	C. Rivera
1218-00848	69/K	135-A-029	7/8/2019	6/5/2021	No	7.27	Live	Perched at Manahawkin Lake		3	V. Mcerlean
1088-06487	63/C	135-A-025	6/25/2015	6/28/2021	Yes (2020)	15.3	Live	Nesting @ 146-B-005 (2nd year)	F	6	B. Wurst
1088-06499	73/C	101-C-008	7/1/2015	7/5/2021	No	3.95	Live	Nesting at 111-A-022	M	6	B. Wurst
1088-06418	08/C	134-A-003	7/8/2014	7/6/2021	No	21.17	Live	Adult photographed on new nest on pilings.	F	7	B. Wurst
1088-06500	74/C	101-C-008	7/1/2015	7/6/2021	Yes (2020)	47.2	Live	Nesting at 158-B-033 (Absecon)	F	6	B. Wurst
1088-06422	12/C	135-A-026	7/8/2014	7/10/2021	No	7.65	Live	Nesting @ 147-B-032	M	7	B. Wurst
1218-02635	75/K	135-A-022	7/8/2019	7/11/2021	No	0.3	Live	Perched on the marsh near two nests.	M	2	B. Wurst
1088-11619	65/D	147-B-036	6/26/2017	7/11/2021	Yes (2020)	11.22	Live	Nesting @ 135-A-029	F	4	B. Wurst
1088-11630	74/D	135-A-015	6/27/2017	7/11/2021	Yes (2020, flight above North Beach)	2.3	Live	Nesting @ 135-A-019	M	4	B. Wurst
1088-08899	44/D	135-A-025	7/18/2016	7/11/2021	No	1.1	Live	Nesting @ 135-B-006	M	5	B. Wurst
1088-14610	32/H	123-A-002	7/9/2017	7/13/2021	No	4.87	Live	Nesting @ 135-A-042	F	4	B. Wurst
1088-08889	34/D	123-A-003	7/12/2016	7/13/2021	No	2.13	Live	Nesting @ 122-B-014	M	5	B. Wurst
1088-14890	20/K	122-B-014	7/13/2018	7/16/2021	No	1.4	Live	Bird in flight.		3	B. Wurst
1088-06491	67/C	135-A-032	6/25/2015	7/16/2021	Yes (2020 @ Sedge by BW)	3.95	Live	Re-sighted bird in flight (not nest) at Sedge	M	6	B. Wurst
1088-06491	67/C*	135-A-032	6/25/2015	7/16/2021	Yes (2020 @ Sedge)		Live	Bird in flight.		6	R. Bendock
1088-06194	00/C	135-A-029	7/7/2014	7/16/2021	No	4.3	Live	Nesting @ 123-A-021	M	7	B. Wurst

Federal Band	Aux Band	Origin Nest ID #	Date banded	Date of re-sighting	Previously re-sighted?	Distance from natal nest	Present Condition	Bird status	Sex	Age	Who Reported
1088-06455	44/C	123-A-021	7/12/2014	7/20/2021	Yes (2016, IBSP & 2020, Bayville)	5.22	Live	Nesting @ 122-A-014	M	7	B. Wurst
1088-08828	91/C	123-A-003	7/13/2015	7/20/2021	No	3.7	Live	Nesting @ 122-A-009	M	6	B. Wurst
1218-00845	66/K	135-A-020	7/8/2019	7/21/2021	No	6.36	Live	Re-sighted @ 30th Street, Brant Beach		2	B. Wurst
1088-14593	15/H	123-A-021	7/9/17	7/22/2021	No	0.92	Live	Nesting at 123-A-003	M	4	B. Wurst
1088-14639	61/H	122-A-008	7/19/17	7/22/2021	No	3.59	Live	Nesting at 123-A-003	F	4	B. Wurst
1088-08850	08/D	135-A-031	7/1/2016	8/12/2021	No	3.32	Live	Live, photographed flying over beach in Surf City		5	B. Wurst
1218-02924	82/M	135-A-022	7/11/2021	8/13/2021	No	0	Live	Live, photographed on nest at LBIF post fledging		<1	R. Leigh